

# INVESTIGATOR'S ANNUAL REPORT

## National Park Service

All or some of the information provided may be available to the public

<b>Reporting Year:</b> 1993	<b>Park:</b> Shenandoah NP
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<b>Permit#:</b> SHEN1993AGQF	
<b>Park-assigned Study Id. #:</b> unknown	
<b>Project Title:</b> Variation in the Aggressive Behavior & Testosterone Levels of the Red-Backed Salamander	
<b>Permit Start Date:</b> Jan 01, 1998	<b>Permit Expiration Date</b> Jan 01, 1998
<b>Study Start Date:</b> Jan 01, 1993	<b>Study End Date</b> Jan 01, 1994
<b>Study Status:</b> Completed	
<b>Activity Type:</b> Other	
<b>Subject/Discipline:</b> Air Quality	
<b>Objectives:</b> the study was designed to test hypotheses about variation in the aggressive behavior of the male red-backed salamander, <i>Plethodon cinereus</i> . (1) Within populations, we tested the hypothesis that territorial residents will be more aggressive than intruders and will have corresponding higher levels of testosterone (only males were tested). Also, we tested aggressive levels over seasons. (2) Between populations, we tested the hypothesis that aggression will be higher in populations where <i>P. cinereus</i> is sympatric with an aggressive competitor ( <i>P. shenandoah</i> ).	
<b>Findings and Status:</b> Preliminary analysis of behavioral data taken in the summer of 1993 have determined that individuals from Hawksbill Mtn. are more aggressive than those from MLBS. When biting occurs during contests, those from Hawksbill Gap (temperature in the afternoon on 14 July was 26.6 C, hot, humid, with a small afternoon shower and temperature in the morning on 15 July 1993 was 19.7 C and it was partly cloudy with scattered showers), in the area collected (approximately 4 acres) there were 62 red-backed males, 12 lead-backed males, 29 red-backed females, 1 lead-backed female, 40 red-backed juveniles, and 1 one-year-old lead-backed juvenile. For 30 September 1993 at Hawksbill Gap (temperature 14.4 C in sun, 5.3 in shade, partly cloudy, breezy with increased cloudiness during the day), I found 64 males, 61 females, 29 two-year-old juveniles, and 10 one-year-old juveniles (red-backed and lead-backed individuals were not indicated). For the population at Skyline Drive (mile 62.4) censused on 30 September 1993 (temperature 8.6 C in sun, 8.0 C in shade, clear and breezy) I found 35 red-backed males, 5 lead-backed males, 30 red-backed females, 1 lead-backed female, 15 red-backed two-year-old juveniles, 0 lead-backed two-year-olds, 8 red-backed one-year-olds, and 5 lead-backed one-year-olds. On 7 October at Skyline Drive site (collecting for 1 hour) I found 15 red-backed males, 1 lead-backed male, 9 red-backed females, 0 lead-backed females, 9 red-backed two-year-olds, 1 lead-backed two-year-old, and 1 red-backed one-year-old (0 lead-backs).	
<b>For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?</b> No	
<b>Funding provided this reporting year by NPS:</b> 0	<b>Funding provided this reporting year by other sources:</b> 1000

**Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college**

**Full name of college or university:**

GRADUATE STUDENT ORG. - LSU

**Annual funding provided by NPS to university or college this reporting year:**

300